ISOLASI DAN KARAKTERISASI BAKTERI PENGHASIL ENZIM KITINASE DARI GUANO KELELAWAR SERTA POTENSINYADALAMMENGHAMBAT PERTUMBUHAN KAPANG*Colletotrichum* sp**PENYEBAB PENYAKITANTRAKNOSA PADA TANAMAN CABAI SECARA *IN VITRO***

OLEH:
HENY RAHMAWATI
NIM. 11308144039

ABSTRAK

Penelitian ini bertujuan untuk mengetahui jumlah isolat bakteri penghasil enzim kitinase dengan aktifitas enzim yang tinggi, genus isolat terpilih, aktifitas enzim kitinase isolat terpilih dan mengetahui pengaruh isolat bakteri terpilih dalam menekan pertumbuhan kapang *Colletotrichum* sp. Bakteri diisolasi dari guano kelelawar yang diperoleh dari Gua Grodo, Kecamatan Playen, Kabupaten Gunungkidul, Yogyakarta.

Bakteri diisolasi dari guano kelelawar dengan metode *pour plate* dan dilakukan *screening* terhadap isolat yang memiliki aktifitas enzim kitinase terbesar. Isolat bakteri terpilih dikarakterisasi baik karakter makroskopis, mikroskopis maupun fisiologisnya. Bakteri diidentifikasi menggunakan metode *profile matching* berdasarkan persentase kesamaandengan genus acuan. Bakteri yang diperoleh kemudian diuji kemampuannya dalam menekan pertumbuhan kapang *Colletotrichum* sp. dengan metode modifikasi Kirby Bauer. Data karakterisasidanidentifikasidianalisissecaradeskriptifsementara hasil uji antagonis dianalisis menggunakan analisis varianuntuk mengetahui pengaruh bakteri terhadap pertumbuhan kapang *Colletotrichum* sp. dengan program SPSS (*Statistical Product and Service Solution*) versi 22.0

Hasil isolasididapat 7 isolat bakteri penghasil enzim kitinase dengan dua isolat terpilih yaitu isolat 26 dan 31. Isolat 26 memiliki aktifitas enzim kitinase sebesar 1,13 unit/ml dan isolat 31 sebesar 0,98 unit/ml. Hasil identifikasi menunjukkan isolat 26 diduga merupakan genus Streptomyces dengan persentase kesamaan 84,61% dan isolat 31 merupakan genus Morococcus dengan persentase kesamaan 73,08%. Hasil uji antagonis terhadap pertumbuhan kapang *Colletotrichum* sp. menunjukkan kedua isolat memberikan pengaruh nyata dalam menghambat pertumbuhan kapang *Colletotrichum* sp. dengan nilai signifikansi ($p \leq 0,05$). Uji lanjut DMRT menunjukan isolat 26 memberikan pengaruh lebih besar dalam menghambat kapang *Colletotrichum* sp. dibandingkan isolat 31.

Kata kunci: Bakteri Penghasil Enzim Kitinase, Guano, *Colletotrichum* sp., Antraknosa

ISOLATION AND CHARACTERIZATION OF GUANO BAT'S CHITINASE - PRODUCING BACTERIA AND ITS POTENCY TO INHIBIT FUNGI *Colletotrichum*sp. GROWTH THATCAUSE ANTHRACNOSE ON CHILI (IN VITRO)

BY:

Heny Rahmawati
NIM. 11308144039

ABSTRACT

This study aims to determine the chitinase producing bacteria with high enzyme activity amount, selected genus bacteria, chitinase enzyme activity from the selected bacteria and to determine the bacterial isolates effect to inhibit the growth of fungus *Colletotrichum* sp. Bacteria isolated from bat's guano, obtained from Grodo Cave, District Ponjong, Gunungkidul Regency, Yogyakarta.

Bacteria isolated from bat's guano by pour plate method and screening against isolates that have the greatest chitinase enzyme activity. Selected bacterial isolates were characterized by the macroscopic, microscopic and physiological characters. Bacteria were identified using the profile matching method based on the similarity percentage with the reference genus. The bacteria ability to inhibit the fungi *Colletotrichum* sp. growth tested using modified Kirby Bauer method. The characterization and identification data analyzed descriptively while antagonist assay results were analyzed using analysis of variance to determine the bacteria effect on the fungus *Colletotrichum* sp. growth with SPSS (Statistical Product and Service Solution) version 22.0.

Results obtained 7 chitinase producing bacteria with two selected isolates, isolates 26 and 31. Isolate 26 has 1.13 units / ml chitinase activity and isolate 31 with 0.98 units / ml. The identification results showed isolate 26 suspected to be genus Streptomyces with similiarity percentage of 84.61% and isolate 31 is a genus Morococcus with similarity percentage of 73.08%. The antagonist test results showed that both isolates have significant effect to inhibit the fungi*Colletotrichum* sp. growth with significance value ($p \leq 0.05$). Further DMRT, isolate26 showed a greater effect in inhibiting the fungi Colletotrichum sp. than isolate 31.

Keywords: Chitinase Producing Bacteria, Guano, *Colletotrichum* sp., Antrachnose